

ABSTRACT

A converter circuit is specified for switching a large number of switching voltage levels, which has n first switching groups (1.1, ..., 1. n) for each phase (R, Y, B), with the n -th first switching group (1. n) being formed by a first power semiconductor switch (2) and a second power semiconductor switch (3), and with the first first switching group (1.1) to the ($n-1$)-th switching group (1.($n-1$)) each being formed by a first power semiconductor switch (2) and a second power semiconductor switch (3) and by a capacitor (4), which is connected to the first and second power semiconductor switches (2, 3), with each of the n first switching groups (1.1, ..., 1. n) being connected in series to the respectively adjacent first switching group (1.1, ..., 1. n), and with the first and the second power semiconductor switches (2, 3) in the first first switching group (1.1) being connected to one another. In order to reduce the amount of electrical energy stored in the converter circuit, $n \geq 1$ and p second switching groups (5.1, ..., 5. p) and p third switching groups (6.1, ..., 6. p) are provided, which are each formed by a first power semiconductor switch (2) and a second power semiconductor switch (3) and by a capacitor (4) which is connected to the first and second power semiconductor switches (2, 3), where $p \geq 1$ and each of the p second switching groups (5.1, ..., 5. p) is connected in series with the respectively adjacent second switching group (5.1, ..., 5. p), and each of the p third switching groups (6.1, ..., 6. p) is connected in series with the respectively adjacent third switching group (6.1, ..., 6. p), and the first second switching group (5.1) is connected to the first power semiconductor switch (2) in the n -th first switching group (1. n), and the first third switching group (6.1) is connected to the second power

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semiconductor switch (3) in the n-th first switching group (1.n). Furthermore, the capacitor (4) in the p-th second switching group (5.p) is connected in series with the capacitor (4) in the p-th third switching group (6.p).

Figure 1a